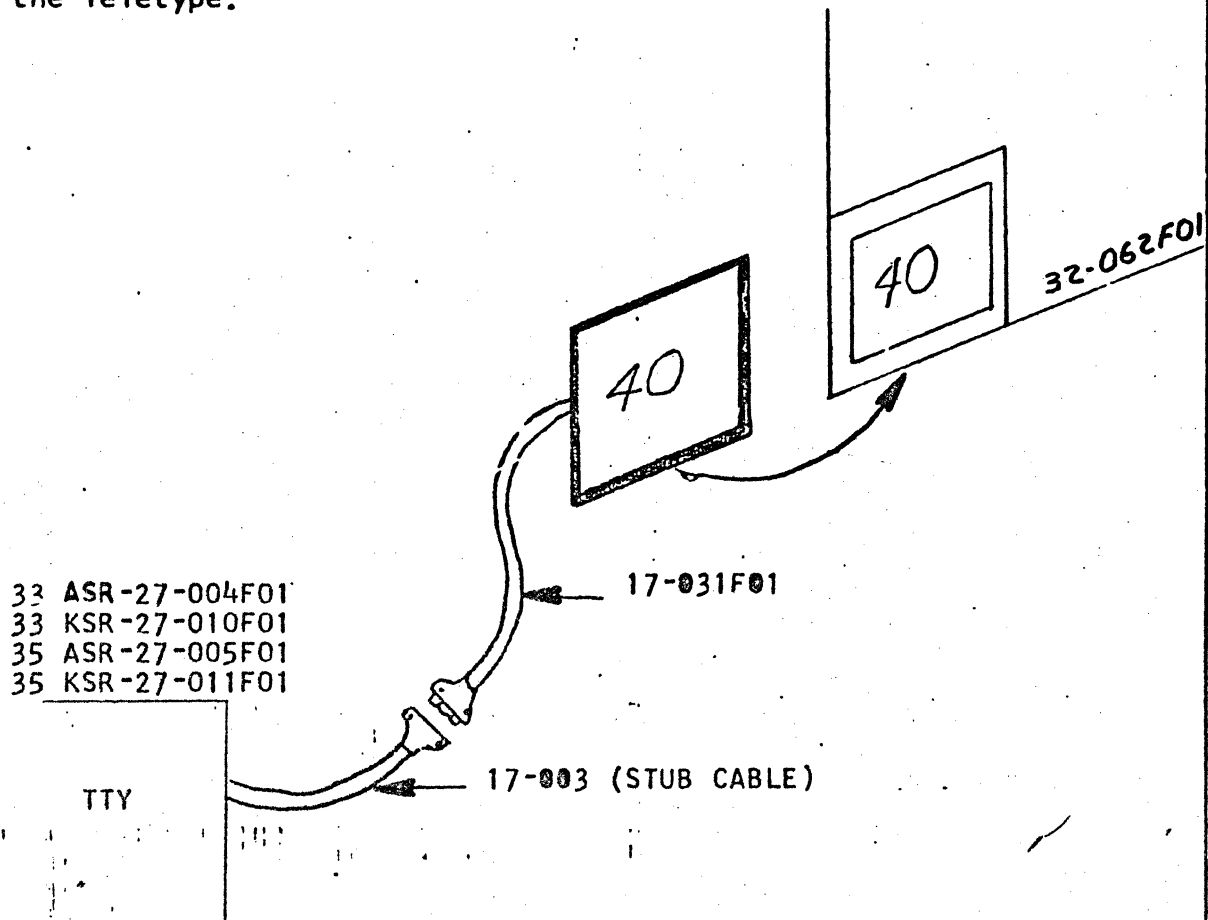


REV NO.	TITLE	CONT ON SHEET F	SH NO. 1
	33 ASR/KSR, 35 ASR/KSR INSTALLATION SPECIFICATION		
CONT ON SHEET	SH NO.	FIRST MADE FOR GE-PAC 30	(02-012A20)

The Teletype controller consists of one mother-board and one cable. The controller may be installed in any I/O slot of a main or expansion file. The RACK,0/TACK,0 (114-0 to 214-0) jumper on the back panel must be removed from the slot where the mother-board is placed.

Refer to the Mechanical Layout and Wiring and Multiplexor and Selector Channel Wiring Data Section of the Systems Interface Manual. Publication Number PCP126.

Figure 1 shows the cable connection between the mother-board and the Teletype.



Inter-Connection between
TTY and Controller

MADE BY E. WHITE	APPROVALS	PROCESS COMPUTER	70A111131
ISSUED	E. G. White	DEPT.	
Dec 19, 1969	Nov 23, 69	PHOENIX	
FF-803-WA (3-67) PRINTED IN U.S.A.		LOCATION	CONT ON SHEET F SH NO. 1

REVISIONS

A ISSUE

K7-20

PRINTS TO

CODE IDENT NO.

GENERAL ELECTRIC

70A110528

PRINT DAY.

K7-19

PRODUCT SPECIFICATION

(33 ASR/KSR) KP I/O CONTROLLER ONLY

CONT. ON

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SH. NO.

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(02-016A19)

GENERAL NOTES

F.C.F.

FMF:GE-PAC 30

APPROVED BY:

E. G. White

DATE:

Jan. 27 70

REVISION STATUS

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REISSUED

[illegible]

Made By

W. Wong

Issue Date

Jan. 30, 1970

PROCESS

COMPUTER
PHOENIX, ARIZ.

Dwg. No.

Cont. on 1

70A110528

Sh. No. 0

GENERAL ELECTRIC

70A110528

CONT ON SHEET 2

SH NO. 1

REV
NO.

TITLE

PRODUCT SPECIFICATION

(33 ASR/KSR)

KP I/O Controller Only

(02-016A19)

CONT ON SHEET

SH NO.

FIRST MADE FOR GE-PAC 30

REVISIONS

B

1. Documentation

The following documents are supplied with each unit.

1 each	Operation and Programming Information
1 each	(Part of the GE-PAC 30/3010 General Description Manual)
1 each 70A112430	Maintenance Specification
1 each 70A110416	Modification Manual
1 each 70A112452	Test Tape (33 ASR)
1 each 70A112454	Test Tape (33 KSR)

2. Parts List

Part Number (02-016) 70A104048 G.27	
1 each 32-062E01	Mother-Board
1 each 17-031F01	Cable
1 each 17-003	Stub Cable

3. Dimensions

3.1	17-031F01 Cable	10 Feet
3.2	17-003 Cable	1 Foot

4. Weight

Mother-Board and Cable	1.3 pounds
------------------------	------------

5. Power Requirement

5.1 DC Power Drain

+ 5 volt	0.75 amperes
+15 volt	0.10 amperes
-15 volt	0.10 amperes

6. Environmental

6.1	Controller	0°C to 50°C
6.2	Vibration	Equals or
6.3	Humidity	Exceeds Processor

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Phoenix

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CONT ON SHEET

2

SH NO. 1

CODE IDENT NO.

PP-400-WA 12-591
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TITLE

CONT ON SHEET F

SH NO. 2

**PRODUCT SPECIFICATION
(33 ASR/KSR)**

CONT ON SHEET

SH NO.

KP I/O Controller Only
FIRST MADE FOR **GE PAC 30**

(02-016A19)

REVISIONS

7. Description

7.1 The product covered in this specification is for use with the 33 ASR Teletype. It consists of one mother-board controller, connecting cables, and instructions for modifying a standard 33 ASR or 33 KSR Teletype for computer use.

7.2 Specification

Speed	10 Characters/Sound
Accommodate	33 ASR PD106C, After Modification

8. Acceptance Test

Each Teletype Controller must successfully operate with the Teletype Test Program under nominal and marginal conditions. The test description for the Teletype system is covered by 70A110018.

9. Other Pertinent Data

Cross reference part numbers.

GE-PAC 30 Part Number

GE-PAC 30 Marketing Number

02-015

34-03

Cross Reference between Teletypes, Part Numbers, and Purchase Descriptions

Teletype	GE-PAC 30 Part Number	Teletype PD
33 ASR	70A1103101	33 ASR
33 KSR	60A0807522231	33 KSR

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LOCATION

CONT ON SHEET F

SH NO. 2



70A110795

K7-09

TELETYPE INTERFACE TEST SPECIFICATION

CONT. ON 1 SH. NO. 0

(32-004A09)

GENERAL NOTES

F.C.F.

FMF: GE-PAC 30

APPROVED BY: E. G. White DATE: Aug 21, 1969

REVISION STATUS

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REISSUED

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Made By E. WHITE

Issue Date

August 26, 1967

PROCESS

COMPUTER
PHOENIX, ARIZ.

Dwg. No.
Cont. on

70A110795
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Sh. No. 0

GENERAL ELECTRIC

70A110795

CONT ON SHEET 2 SH NO. 1

REV
NO.

TITLE

TELETYPE INTERFACE TEST SPECIFICATION

CONT ON SHEET

SH NO.

FIRST MADE FOR GE-PAC 30

(32-004A09)

TEST SPECIFICATIONS FOR THE TELETYPE INTERFACE

REVISIONS

1.1 General

- 1.1.1 The Teletype (TTY) Interface provides the serial to parallel conversion circuits needed to operate with the serial TTY machines (n el 33 & 35). It also contains the control and I/O Bus Communications circuits needed to operate with the Processor.
- 1.1.2 The TTY machines are connected in the full duplex, 20 milliamp mode. The TTY Printer, under computer control, may or may not provide a copy of input data.
- 1.1.3 The TTY Interface conversion register is shared between input and output modes so a half duplex operation results.

1.2 Test Setup

- 1.2.1 Connect the TTY Interface to the I/O Test Box using connector 0 on the MB. Connect +16V, +5V & ground to the I/O Test Box. Also connect a ground from the Interface MB to the power supply ground.
- 1.2.2 Connect the TTY Cable to MB location 40 and plug the other end into the TTY stub cable. Plug the TTY power cord into 110 VAC, 60 cycle, single phase power source.
- 1.2.3 Set the TTY power switch to the LOCAL position and verify correct TTY operation by operating several printing and control keys.
- 1.2.4 Set the TTY power switch to the OFF position.

- 1.3 Operate the SCIRO switch on the I/O Test Box check for proper circuit operation by monitoring the following test points:

Name	Test Point	Proper State
ADL	L14	Low
EBL1	L13	Low
BLK1	L12	High
ATN1	L11	Low
DUL	LO5	High
BSYL	LO2	Low
DTO	LO1	High
BRK1	LO0	Low

1.4 Address, Status & Command Check

- 1.4.1 Select TTY address (02) by setting data input switch 6 in the ON position with all others OFF. Now turn the ADRS switch ON

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SH NO. 1

GENERAL ELECTRIC

70A110795

CONT ON SHEET 3

SH NO. 2

REV NO.

TITLE

TELETYPE INTERFACE TEST SPECIFICATION

CONT ON SHEET

SH NO.

FIRST MADE FOR GE-PAC 30

(32-004A09)

REVISIONS

momentarily to set the TTY address flop. Insure that the SYN indicator comes ON with the ADRS switch. Test point L14 should now be High.

1.4.2 Operate the SR switch and leave it ON. Check that the SYN indicator comes ON and that the data output indicators for bits 3 & 7 are ON.

1.4.3 Set the TTY Power switch to the LOCAL position. Data output indicators for bits 3 & 7 should still be ON.

1.4.4 Set the TTY Power switch to the LINE position. Verify that data output indicator 7 is OFF. There should be no movement of the TTY printer carriage.

1.4.5 Set the SR switch to the OFF position and check that all output data indicators are OFF.

1.4.6 Set the data input switches 1 & 2 to the ON position with all others OFF. Now turn the CMD switch ON momentarily to set EBL and clear BLK flops. Check that the SYN indicator comes ON with the CMD switch. Test point L13 should now be High and L12 should be Low.

1.4.7 Set the data input switches 0 & 3 to the ON position with all others OFF. Turn the CMD switch ON momentarily to clear EBL and set BLK flops. Test point L13 should be Low and L12 should be High.

1.5 TTY Timing Set-Up

1.5.1 Ground test point LO3 on the Interface MB & monitor test point LO4 with a scope. The TTY timer should now be free-running.

1.5.2 Adjust the pulse at LO4 (positive pulse) to a width of 2.3 milliseconds with the pot located on the MB at location 45. The time between leading edges of adjacent pulses should be about 9.1 milliseconds.

1.5.3 Remove the ground from test point LO3 and monitor LO3 with a scope set for 1 millisecond per cm. (positive pulses). Put the TTY in the LINE position.

1.5.4 Hold down the REPEAT & RUB OUT keys on the TTY and adjust the pot for 5 millisecond positive pulses at LO3.

1.5.5 Change the time base on the scope to 20 milliseconds per cm. and verify that only 11 pulses are present in a 100 millisecond period at test point LO4 each time a TTY key is depressed.

1.6 DA, DR, RACK & TACK Check

1.6.1 Set the data input switch 1 to the ON position with all others OFF.

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GENERAL ELECTRIC

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REV NO.	TITLE TELETYPE INTERFACE TEST SPECIFICATION	
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Turn the CMD switch ON momentarily to set the EBL flop. Check that the ATN indicator is OFF.

- 1.6.2 Now turn the DA switch ON. The SYN indicator should be ON as long as the DA switch is ON. Set the DA switch to the OFF position. The Interface should send a character to the TTY. Check that the A indicator is ON.
- 1.6.3 Operate the RACK switch and leave it ON. The data output indicator for bit 6 should be ON (address 02 returned from the TTY Interface). Check that the SYN & ATN indicators are ON.
- 1.6.4 Set the RACK switch to the OFF position. Check that the SYN & ATN indicators are OFF.
- 1.6.5 Set the RACK switch to the ON position momentarily. Check that the TACK indicator comes ON with the RACK switch and that the ATN and SYN indicators stay OFF.
- 1.6.6 Using the ASCII code sheet, select characters via the data input switches and gate each character to the TTY by momentarily switching DA ON & OFF. The character should be sent to the TTY printer when the DA switch goes OFF. Check that the TTY print-out agrees with the character set up on the Test Box.
- 1.6.7 Operate the SR switch and leave it ON. The data output indicator for bit 3 should be ON and all others OFF. The SYN indicator should be ON. Now type a character on the TTY keyboard and note that the data output indicator for bit 4 flashes ON momentarily and the indicator for bit 3 goes OFF. Set the SR switch to the OFF position.
- 1.6.8 Operate the DR switch and leave it ON. Check that the SYN indicator is ON. The data output indicators should agree with typed characters as indicated on the ASCII code sheet. Set the DR switch to the OFF position.
- 1.6.9 Operate the SR switch and leave it ON. The data output indicator for bit 3 should be ON. Set the SR switch to the OFF position. Try several characters to insure proper data transfer of all bits.

Note: The TTY has an even parity keyboard so bit 0 of the data output indicators may be ON or OFF depending on the character typed. In all cases the number of ON indicators should be even.

1.7 Printer-Block Check

- 1.7.1 Operate the SCLRO switch momentarily. Select the TTY address (02) by setting the data input switch 6 to the ON position with all others OFF. Turn the ADRS switch ON momentarily.

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	TELETYPE INTERFACE TEST SPECIFICATION			
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1.7.2 Type various characters on the TTY keyboard and check that no printing occurs. 1.7.3 Set the data input switch 2 to the ON position with all others OFF. Turn the CMD switch ON momentarily to clear the BLK flop. 1.7.4 Type various characters on the TTY and check that correct printing occurs. 1.8 <u>Line Break Check</u> 1.8.1 Operate the DR switch momentarily. 1.8.2 Operate the SR switch and leave it ON. Check that the data output indicator for bit 3 is ON and all others are OFF. 1.8.3 Operate the BREAK key on the TTY. Check that the data output indicators for bits 2 & 5 come ON as long as the BREAK key is depressed. The indicator for bit 3 should go OFF. Test point L00 should be High as long as the BREAK key is depressed.				REVISIONS
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